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AGRICULTURAL MEMORANDUM NO 388

Estimation of Average Maximum Actual Soil Moisture Deficit

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From the monthly averages of potential transpiration and rainfall (1916-1950) it is possible to find a value of the average potential soil moisture deficit, but this is always likely to be lower than an average found from values estimated annually in each of a series of years.

What is normally required is a measure of the average maximum actual s.m.d., using the model explained in M.A.F.F. Technical Bulletins 16 and 24. This had been done for about 60 stations for each year in 1940-1959 period during the preparation of Tech Bull 24.

The following simple conversions have been deduced:

1. If X is the maximum potential s.m.d. found from the monthly averages

Y is the required average maximum actual s.m.d. (with a limit of 5 inches)

then $Y = 0.43X + 1.9$ when X lies between 0.5 and 4

and $Y = 0.27X + 2.5$ when X is greater than 4

2. When X is small or zero a different technique is used:

Let Z = Potential Transpiration Average minus
Rainfall Average for June and July only

then $Y = 0.4Z + 2$

Any comments or suggestions on this paper should be referred to the author.

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